January 2, 2014

Mr. Larry Stanley
North Carolina Department of Environment and Natural Resources
Division of Waste Management
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Re: Quarterly Remedial Action Construction Progress Report, 4th Quarter 2013,
Seaboard Chemical Corp. and Riverdale Drive Landfill Site, Jamestown, North Carolina

Dear Mr. Stanley:

Seaboard Group II and the City of High Point, NC (hereinafter the "Parties") provide this Remedial Action Construction Progress Report for the former Seaboard Chemical Corporation facility (SCC) and closed Riverdale Drive Landfill (Landfill) located in Jamestown, NC (collectively hereinafter the "Site"). The Remedial Action Pre-Construction Report for the physical treatment systems was submitted to North Carolina Department of Environment and Natural Resources (NCDENR)[1] on December 28, 2009. The report was subsequently approved by NCDENR, Division of Waste Management on March 22, 2010. Although the Natural Treatment Systems Remedial Action Pre-Construction Report has not been formally approved by NCDWM, it was submitted on October 25, 2010, and the Parties have included comments on activities associated with that process as well.

Remedial Construction Work Performed since the Last Progress Report

A Quarterly Remedial Action Construction Progress Report was submitted to NCDENR in early October 2013 updating progress at the Site through the end of September 2013. The activities conducted since that report involve completion of all field construction activities, and the installation of the integration and control programming for the physical and phytoremediation treatment system components. Technical Memoranda numbers E-4, E-5, E-6 and E-7 explain in some detail the difficulties that have been experienced in the construction and startup of this system. The new building housing a new filtration system has been installed. The Parties have completed extensive modifications of certain systems to improve the treatment efficiency of the overall system and remove certain contaminants of concern (CoCs), including certain metals, prior to final treatment. The automation and irrigation upgrades, as well as all other items that were known to be required for initial startup and testing, were complete during the first quarter of 2013. The filter building modifications are complete, all other required modifications are complete, and the system is ready to startup in January 2014.

Remedial Construction Work Delays

With certain exceptions that were described in earlier reports, the construction has progressed steadily considering the overall complexity of the remedial systems and the unique nature of the remedy. The most significant delays have been due to the failure of the physical treatment system original equipment manufacturer to manufacture, test and deliver a system that was functional, complete and ready to be placed in service upon delivery as required by the bid specifications and contract with the Parties.

[1] NCDENR is used in this report to refer to the North Carolina Department of Environment and Natural Resources, and collectively the associated Division of Waste Management, Solid Waste Section, Hazardous Waste Section, and the Inactive Hazardous Sites Branch, all of which have some involvement in the regulatory oversight of this remedial action.

In addition, during the initial startup attempt in the first quarter of 2013 it was determined that the level of metals such as iron and manganese in the leachate and groundwater were significantly higher than those detected in earlier testing.[2] At first, this was thought to be a temporary spike in metal concentrations due to initial system operations. However, it was subsequently determined to be an indication of a more chronically high level of metals, particularly in the leachate.[3]

System Startup

At this time, the contractors have finished the modification of the remedial system necessary to remove the CoCs and metals. Now that those modifications are complete the system will resume startup testing in January of 2014. A more detailed schedule of activities is attached to this report.

Attachments

Several items have also been attached to this report. They include:

- A proposed project schedule
- The recent groundwater and leachate test results
- The PhotoCat pilot study groundwater and leachate test results
- A full list of the Site contaminants of concern
- A Site layout diagram
- Simplified flow diagram
- Site photographs

These items are located at the end of this report.

Equipment Defects

The equipment defects were explained in earlier reports. Briefly, the physical treatment system was not functional at the time of delivery by the manufacturer. The system contained numerous mechanical and electrical defects, and proved unable to perform safely and reliably during operation as required by and agreed to in Purifics' contract with the Parties. The most significant defects were related to the system control and data acquisition hardware and software provided by Purifics that control the overall operation, alarm and interlock functions of the physical and phytoremediation treatment systems. This equipment, including the hardware, associated software and licenses, are collectively referred to in this report as the "system control and data acquisition" system or "SCADA". Although the SCADA proved to contain the most difficult defects to correct, the remaining components of the supplied equipment also contained numerous other mechanical and electrical defects, safety issues, bid specification discrepancies and professional standards and regulatory nonconformities.

Automation Upgrade

The Automation Upgrade Project addressed most of the manufacturer's defects. During this project, the SCADA and certain other automation hardware and software supplied by Purifics was replaced with an entirely new SCADA system using different hardware, and programed with software developed specifically for the process in a more robust and reliable computer language. The automation upgrade progressed as scheduled and was complete in March 2013.

[2] A copy of the analytical results from the earlier pilot study is attached to this report for reference.

[3] A copy of the recent analytical results is attached to this report for reference.

Irrigation Upgrade

The irrigation system defects were addressed in the Irrigation Upgrade Project. During this project the soil moisture probe failure was addressed by replacing the 69-soil moisture probes with new soil suction probes. These probes are more substantial and less likely to be damaged by the conditions of use at the Site. Since these new probes did not have a temperature sensor, the contractor installed one temperature probe at the upper, middle and deep moisture sensor depths, one nest in each landfill lobe, to measure the temperature and compensate the soil suction readings. In addition, they installed a single shallow temperature probe in each landfill lobe to detect "hard freeze" conditions. The remaining irrigation defects were corrected by replacing the faulty translation hardware and software components and entirely new hardware and software that communicated properly with the SCADA. This project was completed during the first quarter of 2013.

Filtration Upgrade

In past testing the concentrations of iron and other metals detected in the combined groundwater and leachate had been reported to be relatively low. During the pilot testing of the advanced oxidation system (AOP^+ Unit), and other testing performed earlier, the concentration of iron, in particular, was indicated to be in the range of 10- to 20-mg/l. During initial startup, that was determined not to be accurate. Testing determined that, particularly in the leachate, the iron level is substantially higher, more continuously in the range of 60 to 80 mg/l. The underlying cause of this discrepancy is not known. It has been theorized that the earlier leachate may have been diluted by rainwater or surface water before being sampled; however, there is no way to determine the cause at this time.

It was, therefore, concluded it would be necessary to address the iron and other metals earlier in the process-flow with more robust methods to avoid fouling of pipes and equipment inside Lift Station 2 (LS-2) and the main treatment system, as well as the lines that transfer flow between Lift Station 1 (LS-1) and LS-2. Therefore, it was necessary to remove most of the iron and other metals from the process-flow as it enters the system rather than in the metals removal vat in the main treatment system as originally planned.

In determining the most effective resolution to the metals problem, the Project Managers referred to work performed much earlier in the remedial action, during the Feasibility Study preparation, by ERM-NC, PC (ERM). In a report authored by Dr. Richard Brown of ERM, several methods of iron control were explored including sequestration, chelation, ion exchange and aeration. Dr. Brown's report concluded that the only method that appeared to be operationally and economically viable, considering the Site conditions, was aeration.

As a result, a new pilot study was performed in early 2013 to simulate a proposed process design. This design consisted of adding aeration at LS-1 followed by a second stage of aeration in a new Filter Building to address the flow that does not pass through LS-1, prior to the combined flows being filtered and air stripped prior to entering the main treatment system. This modification has been installed and is intended to address the iron and other metals from the combined flow of groundwater and leachate before it enters LS-2 and is further processed.

The modifications required that the system be modified to add aeration at LS-1 and a new building constructed to house an aeration tank, a larger filter system and an air stripper properly sized to process the combined flow of all groundwater and leachate at a rate of 50-GPM. It was determined the "Media Filters" provided by Purifics would not adequately handle the flow anticipated. It was also determined there were significant problems with the media filters themselves. During backwash, the filter media was being washed out of the filters and into the Metals Removal Vat. Further investigation revealed the filter bodies were inadequately sized for a design flow of 50-GPM. This meant that the velocity of the backwash water too high and rather than just lifting the bed it was carrying the media out of the vessels and into the Metals Removal Vat.

Therefore, it was determined that new filters properly sized to handle 50-GPM would be needed. In addition, a new building was needed because it was determined the floors installed in the existing structures were not capable of supporting the floor loading of the properly sized filter bodies once they were full of media and water.

LS-1 Aeration Upgrade

The metals removal upgrade consisted of adding an aeration tank to the flow path at LS-1. The aeration tank employs ceramic fine bubble diffusers to aerate the combined leachate and groundwater flow exiting the inlet manifolds in LS-1. That flow is directed to a newly installed vertical flat-bottomed tank with the ceramic fine-bubble diffusers. That tank gravity overflows into the existing tank T-120 where the existing P-120 A&B pumps transfer it to the new Filter Building.

Filtration System Upgrade

The filters and associated equipment needed to be installed in a new 30- by 30-foot metal building constructed on a concrete pad designed to support the weight of the filter bodies and house any ancillary equipment needed to provide aeration and filtration of the entire flow of groundwater and leachate prior to its entry into the Metals Removal Vat. The design process flow changes called for the combined flow from LS-1 to be aerated with fine bubble aeration and then pumped to a tank in the new filter building where it would be mixed with the other influent flows, which in turn would be aerated with fine bubble aeration, and filtered to 50-micron prior to being air stripped and transferred into the metals removal vat. To accomplish this, the existing chemical oxidizer storage tank supplied by Purifics was modified and used as an inlet aeration tank in the Filter Building. This tank overflows into an equalization tank, which is pumped through a large filtration system and then into the Air Stripper. From there the system flow is pumped through an inlet manifold in LS-2, through a static mixer and air injector prior to entering the metals removal vat[4].

The metals removal vat is a rectangular vessel that is roughly 6-feet wide, 5-feet tall and 36-feet long. It was supplied as an open vat designed to settle any solids from the process flow. During the filter modifications, the vat was modified by installing a metal cover to control vapor emissions and adding three adjustable baffles to allow better solids separation. A vapor control system was installed earlier to control VOC emissions from the vat.

From the metals removal vat the flow is either sent directly into the T-400 tanks for discharge, or to the AOP^{+} system for additional processing before being sent to the T-400 tanks for discharge. From the T-400 tanks the processed flow can be sent to the City of High Point Eastside Wastewater Treatment Plant for additional treatment prior to discharge into the Randleman Reservoir, or to the irrigation system for use in the phytoremediation system.

Remedial Construction Work Remaining

Due to delays in acquiring the requisite building permit for the filter building, work was delayed during the second quarter of 2013. However, since the permits were issued the construction has progressed more or less on schedule and most of the lost time has been recovered. The following activities remain to complete the construction and implementation of the remedy:

Physical Treatment System

Lift Station-1

Complete except for the final adjustments to the programming of the new inputs to the SCADA (to be complete by February 3, 2014).

[4] See the simplified process flow diagram attached to this report.

Lift Station-2

Complete except for the final adjustments to the programming of the new inputs to the SCADA (to be complete by February 3, 2014).

Main Treatment Structure

Complete except for the final adjustments to the programming of the new inputs to the SCADA (to be complete by February 3, 2014).

Filter Building

Complete except for the final adjustments to the programming of the new inputs to the SCADA (to be complete by February 3, 2014).

SCADA

A new control panel is installed in the filter building and all the inputs are connected, the automation engineering contractor has installed the programming and will tune and loop check the SCADA software to test the operation and integration of the new Filter Building equipment, and to modify the operation of any of the other existing components that were affected by the upgrades as soon as the system begins testing. This is to be completed by February 3, 2014.

Phytoremediation System

Complete except for the final programming of the irrigation network control using weather station data the SCADA (to be completed by February 3, 2014).

Significant Future Requirements

Monitoring Well Abandonment

The Project Managers submitted Technical Memorandum E-1 dated January 4, 2011 identifying a portion of the monitoring wells at the Site that is no longer necessary, and requested permission to plug and abandon them. NCDENR verbally approved the well abandonment in March 2011, and unless notified otherwise the Project Managers originally intended to schedule this work during 2013 in conjunction with the annual monitoring work. However, because of the uncertainty as to the effect of the MW-6 well casing problem (see below) the Project Managers have elected to delay the monitoring well abandonment until after that problem is resolved. In addition, there are several additional wells at the Site that are not intended to be monitored, gauged, or maintained, and have not been an active part of the Site remedial monitoring program. The Project Managers are in the process of identifying those wells and, once complete, will submit additional wells to NCDWM for approval to be abandon. At the request of NCDENR the potable water well in the front area of the Landfill will also be plugged and abandoned at that time. This work cannot proceed until after the MW-6D problem is resolved, so the actual abandonment work cannot commence until at least 2015.

MW-6 Cluster Problem

There is a failure of the Monitoring Well-6 intermediate (PW-6I) and deep (PW-6D) well casings at a depth of approximately 20- to 30-feet below ground surface. Prior to the Randleman Reservoir being filled the casings on these wells were extended approximately 20-feet vertically to raise their casings out of the normal pool elevation of the Reservoir. The area was then backfilled with uncompacted material during Reservoir constriction. During the 2011 monitoring well sampling, the contractor was unable to sample the PW-6 well cluster. The shifting of the uncompacted fill soils had caused a break in their casings approximately 20- to 30-feet below ground surface. With

the filling of the reservoir, the fill material shifted causing the casings to fail where they were joined when they were extended.

This cluster is located at or near the leading edge of the plume as it reaches the Reservoir boundary. PW-6D is installed into the hanging wall of the Deep River fault and is the only well at the Site installed into that structure other than PWDR-1. Since recovery of the deep well is not possible, a new or alternative well will be required. PW-6D is an important monitoring well for the monitoring of any future contaminant plume migration into the Reservoir.

At this time it is uncertain when the well repairs will be attempted. In speaking with the well repair contractor, the general feeling is that the wells cannot be repaired as they are damaged at or below the present Reservoir normal pool elevation making access to the break area impractical. NCDENR has been informed that this work could not begin until at least 2014.

Effectiveness Evaluation Plan Revisions and Technical Memorandum E-8

A Remedial Monitoring and Effectiveness Evaluation Plan was included in the "Remedial Action Preconstruction Report" (ERN-NC December 2009) as Attachment E. It is not known if NCDENR independently approved this plan; however, there is a record of some review and agency comment. Since it was attached to the approved Preconstruction Report it, is assumed to have been thereby approved by NCDENR.

The Parties reviewed this plan in anticipation of startup and have determined that several elements should be reviewed by NCDENR before it is implemented. This plan becomes effective once the system is started up which is now planned for July 1, 2014. At this time the Project Managers plan to submit Technical Memorandum E-8 supporting the need to review this plan and suggesting a schedule for the submittal of a revised draft to NCDENR.

The main suggested changes involve the collection of capture zone data and the 30-day performance test included in that plan. After recent sample events and other developments and changes in the process equipment installed at the Site, the Project Managers feel that very little useful information will be able to be learned from the proposed 30-day test. It will not be possible to measure the effects of such things as the varying levels in the reservoir, seasonal effects on groundwater flow and the capture zone, and the effect that prolonged pumping might have on the groundwater and contaminant mass. In addition, one of the primary monitoring wells (PW-6D) is damaged and would not be available for the planned short duration test.

As a result, the Project Managers are preparing Technical Memorandum E-8 suggesting a revised *Remedial Monitoring and Effectiveness Evaluation Plan* be submitted for review and approval by April 1, 2014. This plan will suggest a longer capture zone evaluation period using more continuous data collection methods to provide more useful and accurate results. During this initial 2-year period permanently installed transducers and data loggers in selected monitoring wells would monitor the capture zone and provide a long-term assessment of the capture zone effectiveness over all variable Site conditions.

LS-1 Filter System

There is a possibility that iron will begin to foul the pipes leading from LS-1 to LS-2. At this time it isn't possible to predict the extent of this fouling. If it is minor, chelate cleaning can be used eliminate it. However, if it becomes excessive it will be necessary to precipitate and remove a greater amount of the iron at LS-1 before it is transferred to LS-2. The pipes from LS-1 to LS-2 rise up a grade that is approximately 70 feet in vertical lift. The recovery wells and leachate that is pumped into LS-1 does so on an intermittent basis. This means that the lines from LS-1 to LS-2 may sit full of fluid and idle for extended periods causing iron to settle at the lower points in the lines thereby causing fouling that may result in frequent shutdowns for cleaning.

If this becomes excessive the Project Managers have developed plans to install a filter system at LS-1. This would be done during operation since the in line mixer and injection ports are already installed. Using an existing

chemical feed system to inject flocculent, the filters would be used remove the iron before it reaches the transfer lines. These filters would be designed to operate in the same manner as the ones in the filter building, and sized for 20-GPM with 50-micron sieve size. They will be backwashed through a 20-micron sock filter with the filtrate returned to the LS-1.

Transducer and Data-Logger Installation and Integration

If the plan to revise the Remedial Monitoring and Effectiveness Evaluation Plan is approved by NCDENR, it will be necessary to install transducers in certain additional monitoring wells. The Project Managers have reviewed the monitoring wells proposed in Section 3.1 of Attachment E to the existing Remedial Action Preconstruction Plan and feel that recent data may indicate other monitoring wells will better serve the need. The existing plan suggests 5 wells be fitted with transducers and data loggers, and the revised plan would include a similar number of wells. These wells will be fitted with transducers, and the data will be collected by the SCADA.

Summary

The items originally thought necessary to be completed before startup was finished by March 31, 2013. Initial startup began on April 1, 2013 when the irrigation network control programming was incorporated into the SCADA and the automation upgrade was complete. At that time the system was started up and shown to be able to operate in automatic mode for sustained periods in all flow paths, including through the AOP^{+} process. The system was then shutdown to install the Filter Building modifications.

The remedial activities are on schedule to be completed by the date approved by NCDENR in TM E-7. Everything known to be necessary to begin the startup and testing of the system is either in the process of being installed, or has been completed, tested and is ready to be placed in service. The system startup testing will commence on January 6, 2014. Initially the system will be operated on a limited basis processing city water only to test all of the alarms and interlocks, leak check the entire system and to prove the viability of automatic operation of each possible flow path. This is estimated to be complete by February 3, 2014. This system requires a phased startup in which each phase is followed by a series of tests which, when successfully completed, allows the system to progress to the next phase. The final phase is complete when the system is in full operation processing 50-gallons per minute (GPM) of combined leachate and groundwater.

Respectfully,

Project Oversight Consultants

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cc Amos Dawson, Esq. Counsel
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PROJECT SCHEDULE

2013

December 31	System Ready to Operate

2014

January 6 - February 2	Startup on City Water, check for leaks, repair, confirm all alarms and interlocks. Integrate into SCADA.
February 3 – February 23	Slowly bring in the leachate and groundwater wells until operating on all system wells.
February 24 – March 9,	Commence operation of the AOP+ unit to test performance, operate for a sustained 10-day operating period.
March 10, - March 31	Begin to operate using the phytoremediation system and convert all flow to that system. Modify and update SCADA as required.
April 1 – June 1	Submit revised Remedial Monitoring and Effectiveness Evaluation Plan. Test all system parameters needed initial data collection. This includes evaluation of metals at LS-1, Filter Building Equalization Tanks, Filter Inlet, Aerator inlet and Filter Building outlet for iron, manganese, and other metals. Run H_2O_2 test at LS-1 equalization and Filter Building to see the effect of hydrogen peroxide on 1,4-Dioxane at the equalization tanks and aerator outlet. Evaluate the need for a flocculent at the filter inlet.
June 2 – June 15	Shutdown, allow water levels to stabilize for 2-weeks and take initial baseline water levels in all monitored wells. Make final adjustments prior to commencing full-scale operations. Install all transducers and data loggers needed for monitoring.
July 1 -	Submit Construction Completion Report. NCDENR to issue a letter approving operation prior to commencing operation. Operate system at 50-GPM sustained flow with discharge to the irrigation network.

Note:

It may be necessary during the second half of 2014 to shutdown frequently to repair, adjust or modify components. After this initial period, quarterly shutdowns will be scheduled at specified intervals to allow routine maintenance and adjustments.

Parameter	OW-DR1	OW-DR2	OW-DR3	OW-DR4	LCHT-1	LCHT-2	LCHT-3	LCHT-4	LCHT-5	NIS SUMP	Average*
TDS	976	1030	1430	808	1320	2600	4700	3960	808	1100	1873.2
TSS	4	26	2.5	4	220	98	36	226	56	94	76.65
Nitrate -N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.68	<0.10	0.33	0.33
Nitrite -N	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.35	<0.10	0.20	0.2
Iron, total	8.71	8.52	0.37	4.44	**44.90**	**34.10**	**34.70**	**93.80**	**16.80**	**44.5**	29.08
Total Mn	8.19	6.44	1.22	7.57	0.335	0.408	0.633	0.445	2.68	4.06	3.198
Total Mg	92.9	84.5	143.0	78.9	52.1	74.3	61.7	83.9	42.6	58.7	77.26
Total Na	44.8	43.4	27.5	45.1	197.0	512.0	932.0	853.0	85.2	151.0	289.1
pH, lab	NA	NA	NA	6.2	6.5	6.6	7.1	7.4	6.2	6.6	6.66
pH, field	6.6	7.7	6.1	7.3	7.1	7.3	7.5	7.8	7.3	7.5	7.22

Table 1 – Recent Pre-Startup Sample Result

Table 2 – Purifics Pilot Study Test Results

				VOCs EPA Method 8260																													Dioxane		Metals		TOC
	Sample ID	Date	Time	1,1,1-Trichloroethane	1,1,2,2- Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,2-Dichloroethane	2-Butanone (MEK)	4-methyl-2-pentanone	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane (Methyl bromide)	Carbon Disulfide	Chlorobenzene	Chloroethane	Chloroform	Chloromethane (Methyl Chloride)	Cis-1,2-Dichloroethene	Dibromochloromethane	Ethylbenzene	Methylene Chloride	Naphthalene	Tetrachloroethene	Toluene	Trans 1,2-Dichloroethene	Trichloroethene	Vinyl Acetate	Vinyl Chloride	Xylene	1,4-Dioxane	Total	Fe	Mn	
				ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	
Day 1	SEA-PUR-1-IN	3/16/09	1600	729	ND	ND	1570	652	72.6	ND	ND	ND	72.7	ND	ND	ND	ND	2390	393	ND	ND	3070	ND	ND	43.9	ND	ND	193	ND	ND	ND	414	59.4	2100	11,709.6	5.9	8.3	21.7
	SEA-PUR-1-AS	3/16/09	1600	ND	ND	ND	ND	ND	ND	8.2	ND	10.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	--	22.3	0.05	0.045	--
	SEA-PUR-1-EFF	3/16/09	1600	ND	ND	ND	ND	ND	ND	13	ND	187	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	171	374.8	--	--	20.6
Day 2	SEA-PUR-2-IN	3/19/09	1100	796	ND	ND	1670	633	75.3	ND	ND	ND	75	ND	ND	ND	ND	2590	193	ND	ND	3190	ND	ND	47.1	ND	ND	173	ND	ND	ND	448	62.1	--	9,942.5	5.4	8	--
	SEA-PUR-2-AS	3/19/09	1100	ND	ND	ND	ND	ND	ND	ND	ND	7.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	1470	1,479.1	0.05	0.013	--
	SEA-PUR-2-EFF	3/19/09	1100	ND	ND	ND	ND	ND	ND	6.8	ND	74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND	ND	ND	829	911.9	--	--	--
	SEA-PUR-2a-AS	3/19/09	1315	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1840	1,840.0	--	--	--
	SEA-PUR-2a-EFF	3/19/09	1315	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	963	963.0	--	--	--
	SEA-PUR-2b-IN	3/19/09	1600	935	ND	ND	1990	745	95.3	ND	ND	ND	88.1	ND	ND	ND	ND	3210	445	ND	ND	3880	ND	ND	44.9	ND	ND	188	ND	ND	ND	506	75.1	--	12,204.4	6.3	7.8	--
	SEA-PUR-2b-AS	3/19/09	1600	ND	ND	ND	ND	ND	ND	ND	ND	20.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	2130	2,152.4	0.05	0.01	--
	SEA-PUR-2b-EFF	3/19/09	1600	ND	ND	ND	ND	ND	ND	8.4	ND	46.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	2.6	ND	ND	ND	ND	ND	1850	1,706.1	--	--	--
Day 3	SEA-PUR-3-AS	4/7/09	1430	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1300	1,300.0	--	--	--
	SEA-PUR-3-EFF	4/7/09	1425	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44.5	44.5	--	--	--
	SEA-PUR-3a-AS	4/7/09	1530	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1400	1,400.0	--	--	--
	SEA-PUR-3a-EFF	4/7/09	1530	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	98.3	98.3	--	--	--
	SEA-PUR-3b-IN	4/7/09	1630	826	ND	5.2	1690	676	83.7	ND	ND	545	72.1	ND	ND	ND	ND	2340	423	3	17.2	3060	ND	19.7	11.2	5.2	21.9	197	19.7	6.6	ND	478	91.6	--	10,592.1	5.3	8.1	--
	SEA-PUR-3b-AS	4/7/09	1630	ND	ND	ND	2	ND	ND	6	ND	28	ND	ND	ND	68.7	ND	ND	6.5	ND	ND	5.5	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1470	1,589.6	0.025	ND	--
	SEA-PUR-3b-EFF	4/7/09	1630	ND	ND	ND	1.6	ND	ND	ND	ND	167	ND	ND	ND	2.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	229	400.2	--	--	--
Day 4	SEA-PUR-4-IN	4/8/09	1330	901	ND	ND	1850	822	95.4	ND	ND	1940	92.9	ND	ND	ND	ND	2820	508	ND	ND	3770	ND	17.6	41.9	8.6	18.9	187	20.9	7.9	18.2	583	82	--	13,785.3	5.5	7.7	--
	SEA-PUR-4-AS	4/8/09	1330	ND	ND	ND	ND	ND	ND	ND	ND	230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	1830	2,063.8	ND	0.44	--
	SEA-PUR-4-EFF	4/8/09	1330	ND	ND	ND	ND	ND	ND	ND	ND	169	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	443	603.6	--	--	--
Day 5	SEA-PUR-5-AS	4/16/09	1000	3.7	2.1	ND	12.8	ND	1.8	ND	8.1	58.1	ND	6.1	19.8	ND	ND	22.5	1.9	45.4	4.3	16.4	13.7	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	1350	1,567.8	--	--	--
	SEA-PUR-5-EFF	4/16/09	1000	3.2	ND	ND	11.6	ND	1.5	ND	ND	192	ND	2	11.4	3.7	ND	ND	1.7	36.7	3.1	ND	4.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	194	466.7	--	--	--
	SEA-PUR-5a-EFF	4/16/09	1130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	308	308.0	--	--	--
	SEA-PUR-5b-EFF	4/16/09	1250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87.7	87.7	--	--	--
	SEA-PUR-5c-EFF	4/16/09	1445	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	622	622.0	--	--	--
	SEA-PUR-5d-IN	4/16/09	1700	878	ND	3	1880	722	77.7	219	29.9	102	61.6	ND	11.2	ND	ND	1760	296	2.8	ND	3790	3.1	17.5	2540	ND	12.2	147	77.4	10.3	ND	393	75.2	2240	16,378.9	--	--	--
	SEA-PUR-5d-EFF	4/16/09	1700	7.4	ND	ND	26.4	ND	2.8	45	ND	176	ND	ND	17.4	4.5	ND	1.9	2.1	31.8	2.7	2.6	1.9	ND	49.3	N	ND	ND	ND	ND	ND	ND	ND	250	619.9	--	--	--
Day 6	SEA-PUR-6-EFF	4/28/09	1115	ND	ND	ND	ND	ND	ND	15	ND	440	ND	ND	ND	53	ND	ND	ND	3.3	2.8	ND	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND	ND	<5.0	516.0	--	--	--
	SEA-PUR-6a-IN	4/28/09	1325	960	ND	ND	1700	1000	90	ND	ND	ND	90	ND	ND	ND	ND	2800	550	ND	ND	3600	ND	17	15	ND	19	170	13	ND	ND	560	73	1600	13,267.0	--	--	--
	SEA-PUR-6a-EFF	4/28/09	1315	3.3	ND	ND	9.5	ND	1.2	13	ND	380	ND	2	22	10	1.5	ND	2.5	6.2	ND	11	ND	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	482.0	--	--	--
	SEA-PUR-6b-EFF	4/28/09	1545	4.1	ND	ND	12	ND	1.6	14	ND	340	ND	ND	29	8.8	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	ND	ND	ND	ND	ND	85	498.3	--	--	--
	SEA-PUR-6c-EFF	4/28/09	1705	4.1	ND	ND	13	ND	2	11	ND	230	ND	ND	2.8	4.2	ND	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	100	398.2	--	--	--
Day 7	SEA-PUR-7-IN	4/29/09	100	760	ND	ND	1500	680	87	260	ND	ND	87	ND	26	ND	ND	1900	340	ND	ND	3300	ND	18	1800	ND	14	150	100	17	ND	370	68	1900	13,377.0	--	--	--
	SEA-PUR-7-EFF	4/29/09	1015	4.5	ND	ND	13	ND	1.8	32	11	390	ND	1.9	22	17	2	ND	ND	1.9	8.1	ND	14	ND	24	ND	ND	ND	ND	ND	ND	ND	ND	58	601.2	--	--	--
	SEA-PUR-7a-EFF	4/29/09	1230	2.9	ND	ND	11	ND	1.7	25	ND	440	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.1	ND	ND	ND	ND	ND	ND	ND	ND	33	521.7	--	--	--
Day 8	SEA-PUR-8-IN	5/12/09	1630	1100	<20.0	<20.0	2220	1160	112	<100.0	<100.0	<100.0	104	<20.0	<20.0	<20.0	<20.0	3290	592	<20.0	29.7	4680	<20.0	<20.0	82.4	ND	<20.0	201	<20.0	<20.0	23.2	654	82.4	2750	17,080.7	6.5	7.4	--
	SEA-PUR-8-AS	5/12/09	1630	5.7	1.1	<1.0	21	<1.0	3.7	13.3	<5.0	79	<1.0	3.4	36.3	<1.0	<1.0	42.7	3.2	4.6	1.6	30.4	8.4	<1.0	3.1	ND	<1.0	<1.0	3	<1.0	<1.0	<1.0	<1.0	--	260.5	--	--	--
	SEA-PUR-8-EFF	5/12/09	1630	<5.0	<5.0	<5.0	12.1	<5.0	<5.0	<25.0	<25.0	399	<5.0	<5.0	76.6	16.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	16.2	ND	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<2.0	518.6	0.091	ND	--
Day 9	SEA-PUR-9-IN	5/13/09	1645	1220	<10.0	<10.0	2690	1300	130	<50.0	<50.0	90.1	121	<10.0	<10.0	<10.0	<10.0	4190	672	<10.0	33.1	5640	<10.0	22.6	15	ND	20.8	233	14.5	<10.0	25.8	733	109	3030	20,389.1	7.1	7.4	--
	SEA-PUR-9-AS	5/13/09	1645	8.3	<1.0	<1.0	29.6	5.3	3.8	<5.0	<5.0	7	1.4	<1.0	<1.0	<1.0	<1.0	70.1	4.1	<1.0	<1.0	71.3	<1.0	<1.0	<1.0	ND	<1.0	2.8	<1.0	<1.0	<1.0	2.3	<1.0	--	206.0	--	--	--
	SEA-PUR-9-EFF	5/13/09	1645	4.7	<1.0	<1.0	17.1	<1.0	2.2	8.9	<5.0	367	<1.0	<1.0	68.2	19.5	<1.0	<1.0	1.2	<1.0	1.6	<1.0	1.1	<1.0	<1.0	ND	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	481.5	0.12	ND	--

Bold Day - Includes landfill leachate in influent

Red Day - Operation included 3rd rack of lamps in PhotoCat

Results highlighted for easier reading

-- = Not sampled

SEA - Seaboard

PUR - Purifics

IN - Influent

AS - After air stripper

Table 3 - Identified Contaminants of Concern

			Where Detected		Exposure Limit in PPM				
Contaminant	ISCS Number	CAS Number	G.W	LCH	REL	PEL	TWA	RTECS	Other
Volatile Organic Compounds:									
1,1,1,2-Tetrachloroethane	1486	630-20-6	X	X	*	*	*	KI845000	See NIOSH Appendix C
1,1,1-Trichloroethane	0079	71-55-6	X	X	350	350	*	KJ29750	See NIOSH Appendix C
1,1,2-Trichloroethane	0080	79-00-5	X	X	10	10	*	KJ31500	See NIOSH Appendix C
1,1-Dichloroethane	0249	75-34-1	X	X	100	100	*	KI017500	See NIOSH Appendix C
1,1-Dichlororethene	0083	75-35-4	X	X	*	*	*	KV92750	See NIOSH Appendix A
1,2,3-Trichloropropane	0683	96-18-4	X	X	10	50	50	TZ92750	See NIOSH Appendix A
1,2-Dibromoethane	0045	106-93-4	X	X	.045	20	20	KH92750	See NIOSH Appendix A
1,2-Dichloroethane	0249	75-34-3	X	X	100	100	100	KI017500	See NIOSH Appendix C
1,2-Dichloropropane	0441	78-87-5	X	X	*	75	75	TX96250	See NIOSH Appendix A
1,4-Dioxane	0041	123-91-1	X	X	1	100	100	JG82250	See NIOSH Appendix A
2-Butanone	0179	78-93-3	X	X	200	200	200	EL64750	
4-Methyl-2-Pentanone	0511	108-10-1	X	X	50	100	100	SA92750	
Acetone	0087	67-64-1	X	X	250	1000	1000	AL31500	
Benzene	0015	71-43-2	X	X	0.1	1.0	1.0	CY14000	See NIOSH Appendix A, E, and F
Bromomethane	1378	74-96-4	X	X	*	200	200	KH64750	See NIOSH Appendix D
Carbon Tetrachloride	0024	56-23-5	X	X	2.0	10	10	FG49000	See NIOSH Appendix A
Chlorobenzene	0642	108-90-7	X	X	*	75	75	CZ01750	See NIOSH Appendix D
Chloroethane	0132	75-00-3	X	X	*	1000	1000	KH75270	See NIOSH Appendix C
Chloroform	0027	67-66-3	X	X	2.0	50	*	FS91000	See NIOSH Appendix A
Chloromethane	0419	740-87-3	X	X	*	100	100	PA63000	See NIOSH Appendix A
Cis-1,2-Dichloroethene	0436	540-59-0	X	X	200	200	200	KV93600	See ISCS Listing
Cis-1,4-Dichloro-2-Butene	*	1476-115	X	X	*	*	*	EM4900000	Not Listed and no limits established
Ethylbenzene	0268	100-41-4	X	X	100	100	100	DA07000	
Methylene Chloride	0058	75-09-2	X	X	*	25	25	PA80500	See NIOSH Appendix A
Tetrachloroethene	0076	127-18-4	X	X	*	100	100	KX38500	See NIOSH Appendix A
Toluene	0078	108-88-3	X	X	100	200	100	XS52500	

			Where Detected		Exposure Limit in PPM				
Contaminant	ISCS Number	CAS Number	G.W	LCH	REL	PEL	TWA	RTECS	Other
Trans-1,2-Dichloroethene	0436	156-60-5	X	X	200	200	200	KV9400000	Not Listed, Limits from Other Sources
Trichloroethene	0081	79-01-6	X	X	*	100	100	KX45500	See NIOSH Appendix A, C
Vinyl Chloride	0082	75-01-4	X	X	*	1.0	1.0	KU96250	See NIOSH Appendix A
Xylenes (Total)	0084 *	97-47-6	X	X	100	100	100	ZE24500	Based on Ortho, See Meta (0085 and Para 0086)
Semi-Volatile Organic Compounds:									
4-Methylphenol	0031	106-44-5	X	X	2.3	5.0	5.0	GO647500	
Acenapthene	1674	83-32-9	X	X	*	10	10	AB1000000	EPA Priority Chemical, TWA Based on PAH
Acetophenone	*	98-86-2	X	X	*	*	10	AM525000	Not Listed, ACGIH TWA Only
Benzoic Acid	*	65-85-0	X	X	*	*	*	DG087500	Not Listed and no limits established
Bis(2-Ethylhexyl)Phthalate	0271	117-81-7	X	X	5.0	5.0	5.0	TI0350000	See NIOSH Appendix A, Units mg/m^3
Dibenzofuran	*	132-64-9	X	X	*	*	*	HP4430000	Not Listed and no limits established
N-Nitrosodimethylamine	0525	62-75-9	X	X	*	*	*	LU5950000	Regulated 29CFR1910.1016. See Appendix E
Naphthalene	0667	91-20-3	X	X	10	10	10	QJ0525000	Units mg/m^3
Phenol	0070	108-95-2	X	X	5.0	5.0	5.0	SJ3325000	Units mg/m^3
Pesticides:									
Alpha-BHC	0795	319-84-6	X	X	0.5	0.5	0.5	GV3500000	Based on Lindane Units mg/m^3
Beta-BHC	0796	319-85-7	X	X	0.5	0.5	0.5	GV4375000	Based on Lindane Units mg/m^3
Delta-BHC	*	319-86-8	X	X	0.5	0.5	0.5	GV4550000	Based on Lindane Units mg/m^3
Heptachlor	0743	76-44-8	X	X	0.5	0.5	0.5	PC0700000	Units mg/m^3
Heptachlor Epoxide	*	1024-573	X	X	0.5	0.5	0.5	PB9450000	Units mg/m^3
Metals:									
Antimony	0775	7440-36-0	X	X	0.5	0.5	0.5	CC4025000	Units mg/m^3
Barium	1052	7440-39-3	X	X	0.5	0.5	0.5	CQ837000	Units mg/m^3
Chromium	0020	7440-47-3	X	X	1.0	0.5	1.0	GB4200000	See NIOSH Appendix C, Units mg/m^3
Lead	0052	7440-92-1	X	X	.05	0.05	0.05	OF7525000	See NIOSH Appendix C, Units mg/m^3
Nickel	0062	7440-02-0	X	X	.015	1.0	1.0	QR595000	See NIOSH Appendix C, Units mg/m^3
Thallium	0077	7440-28-0	X	X	0.1	0.1	0.1	XG3425000	Units mg/m^3
Vanadium	0107	12604-58-9	X	X	1.0	1.0	1.0	LK2900000	Units mg/m^3
Zinc	0208	1314-13-2	X	X	5.0	5.0	5.0	ZH4180000	Units mg/m^3

Figure 1 - Site Layout

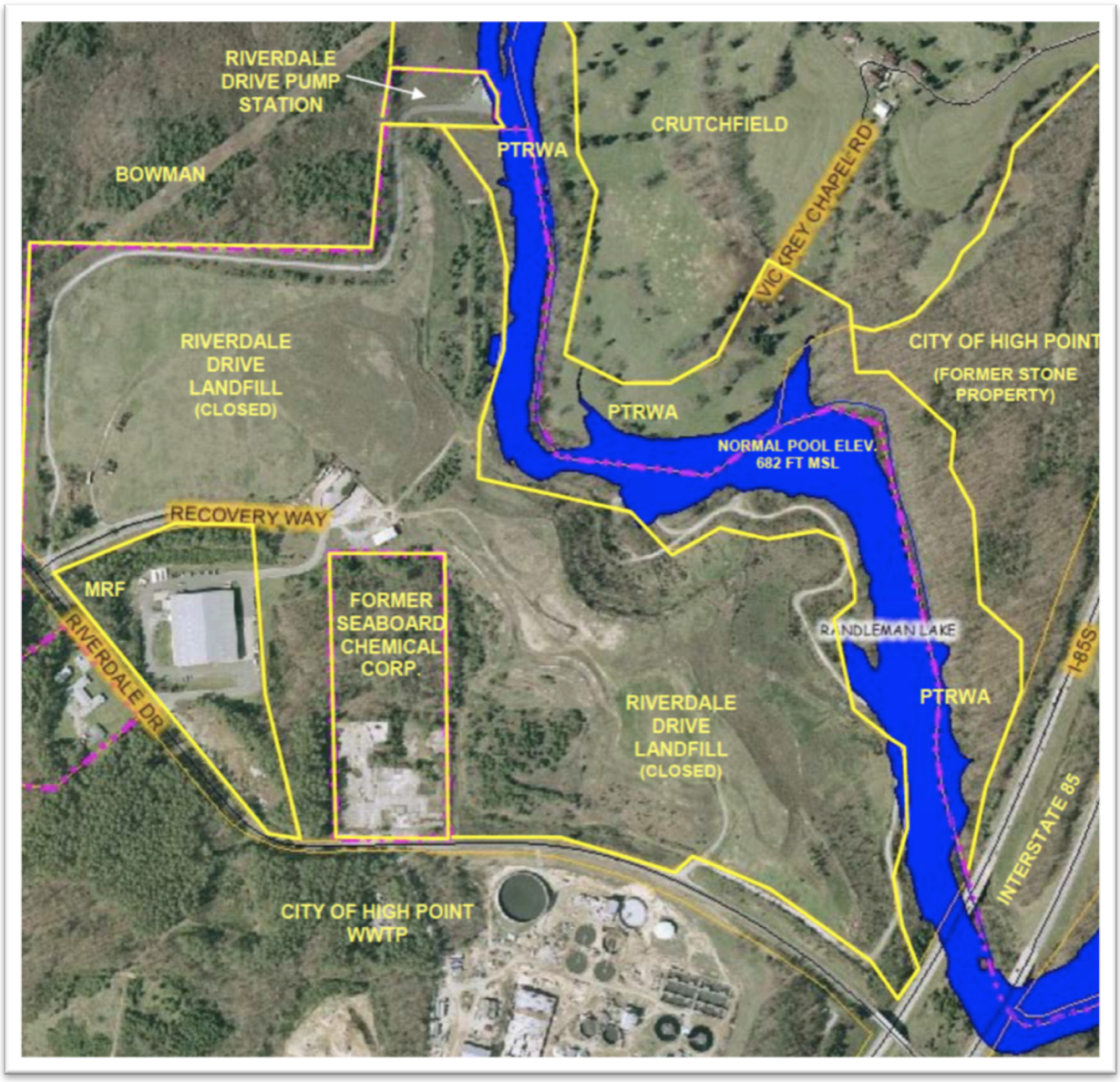

Figure 2 - Simplified Flow Diagram

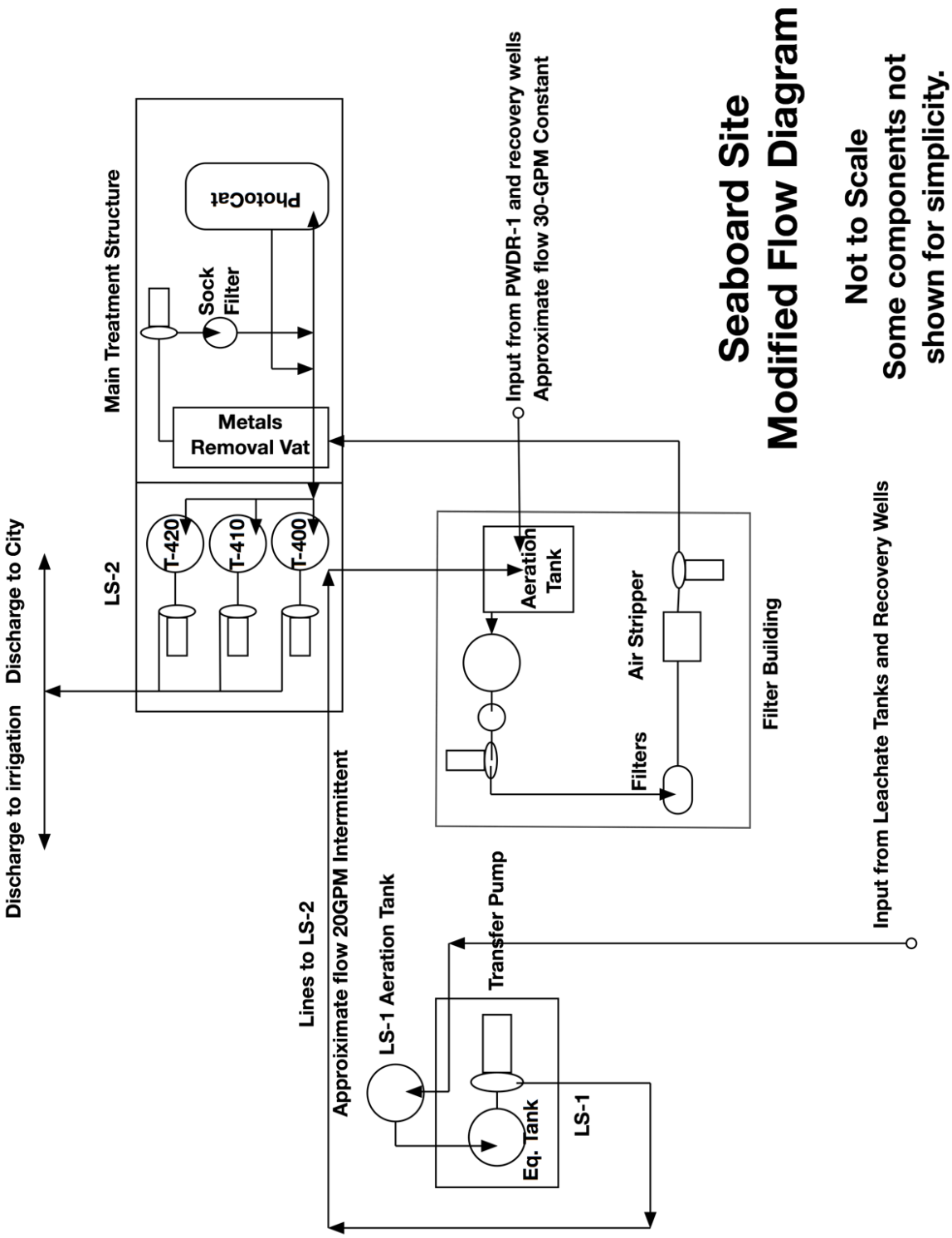

Figure 4 – New LS-1 Aeration System

Figure 3 – New Filter Building Aeration System

Figure 5 – New Filter Bodies and Air Stripper Relocated from Enclosure-4

Figure 6 - Enclosures 1 through 7 housing LS-1 and the Main Treatment System

Figure 7 –Relocated Aeration and New Surge Tanks in Filter Building

Figure 8 - LS-2 Interior